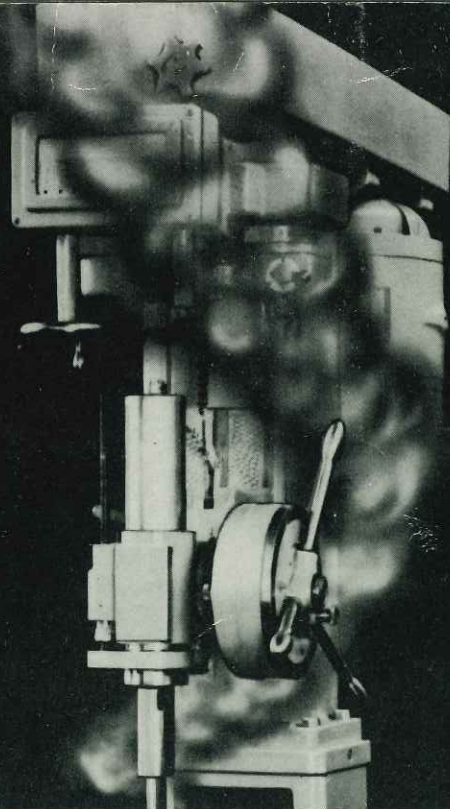




you can't afford to **burn** up tools

so cool the tool

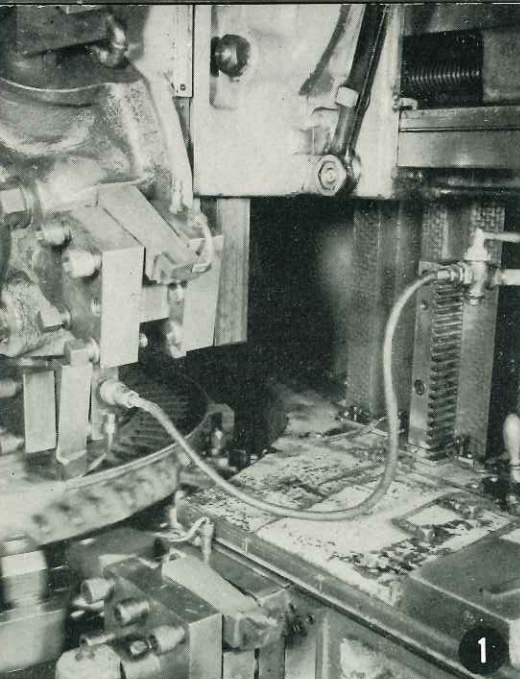
with

~~82/900~~  
82/DIG.1

LO-JET ACRO



by **AIR CONVERSION RESEARCH CORPORATION**  
4107 North Damen Avenue Chicago 18, Illinois



## LO-JET ACRO IS FIELD TESTED AND PROVEN

HERE ARE SOME ACTUAL INSTALLATIONS

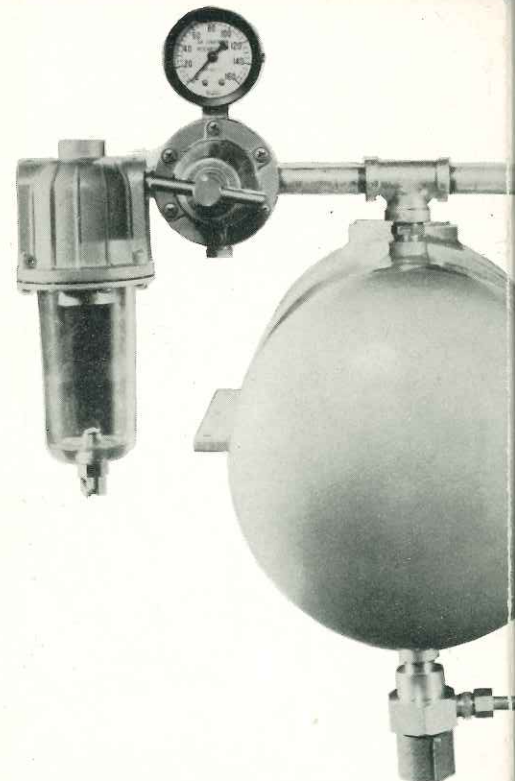
**1 FACING • TURNING • BORING WITH Lo-Jet ACRO.** This is a closeup of picture 4 on the back page. Photographed at Studebaker, Aircraft Engine Div., by American Machinist. Lo-Jet ACRO assembly units can be mounted on movable tables, on the machines themselves, on stands, or suspended from plant walls or roof.

### 2 LATHE WITH Lo-Jet ACRO

Here a Lo-Jet ACRO spray injector assembly is mounted on slide of a LeBlond Hydratrace T-lathe, contour facing 25 1/4 in. aluminum alloy compressor wheels for jet engines. Inset shows nozzle fed through tube clamped to slide, instead of passage drilled in tool block. Here Lo-Jet vaporizes a 24 to 1 water solution of Acro-Coolant at 40 to 50 psi.

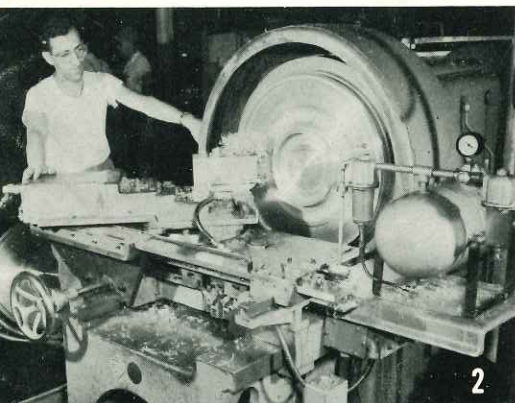
### 3 MILLING WITH Lo-Jet ACRO

This photo shows how Acro-Coolant (in a 24-to-1 water solution) is sprayed from short 1/8-in.-OD nozzles along inside surfaces of 6-in.-diameter side mills on a Cincinnati milling machine. Nozzle tubes are held in compression fittings on ends of 1/4 in. pipe supply lines.



# LO-JET ACRO

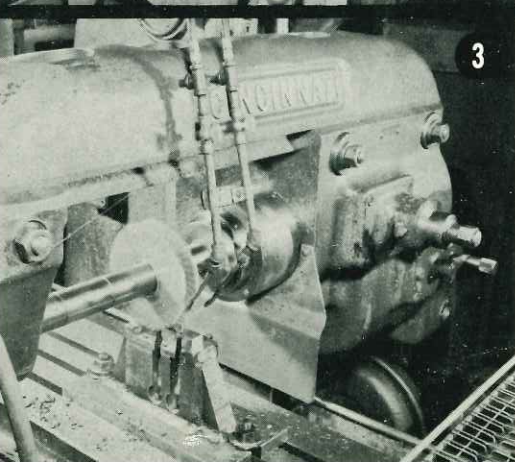
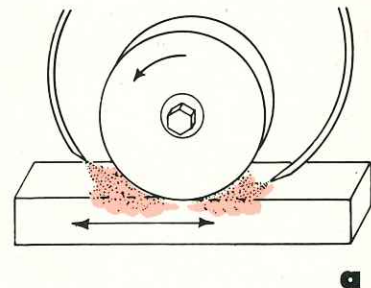
# ...the revolutionary new spray



## WHAT IS LO-JET ACRO

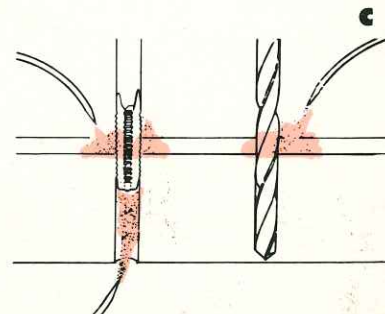
A new type of tool cooling unit which operates on a unique principle to refrigerate and lubricate the tool simultaneously.

It makes use of the same expansion-cooling principle which made mechanical refrigerators practical. The coolant is forced into a high-velocity air stream where it is atomized into an extremely fine mist. Evaporation of the cutting fluid, condensed as the air stream passes through the orifice, absorbs heat from the tool, chip, and workpiece. Lubrication of the chip as it passes over the tool reduces the rate at which friction heat is generated.



## WHAT THE LO-JET PRINCIPLE DOES

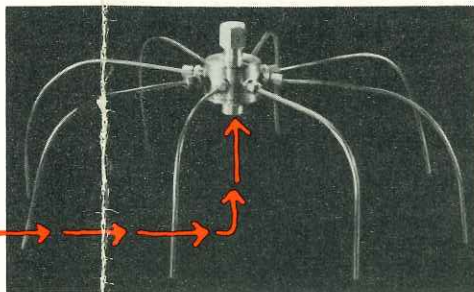
- Prolongs tool life to a remarkable extent.
- Eliminates mess odor and smoke.
- Permits taking fuller cuts on ANY work.
- Permits higher surface feed on most applications.
- Applicable to multi-operation equipment.
- Eliminates necessity for flooding work.
- Eliminates recirculation problems.
- Maintains finish quality of work for longer periods.
- Maintains clear visibility of tool and work at all times.
- Low temperature eliminates discoloration of work.
- Yields longer runs on hard-to-machine materials.



## LO-JET ACRO

keeps work cutting tool at room temperatures!  
ACRO gives best results on the hottest jobs.

Lo-Jet ACRO is available in  
1-3 or 6 gallon tank capacity

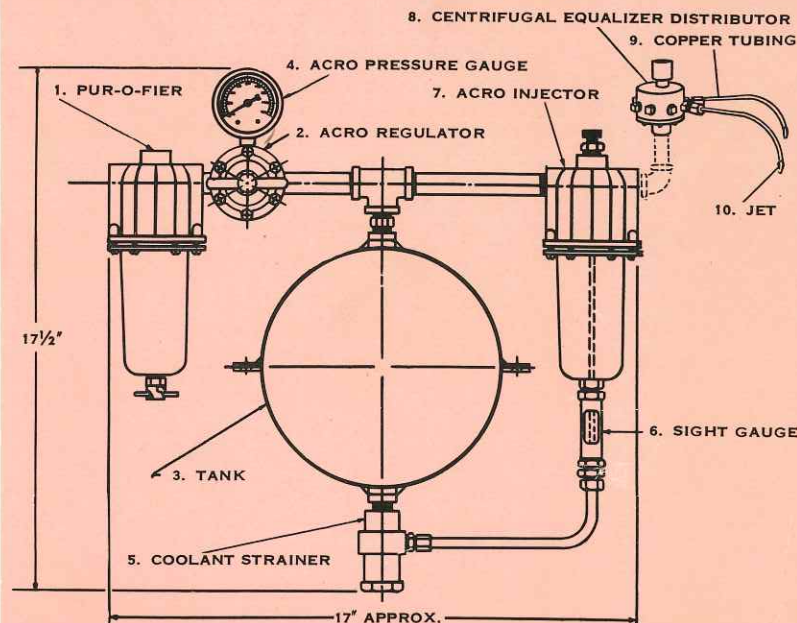


### CENTRIFUGAL EQUALIZER DISTRIBUTOR

shown here is the 8 outlet model units servicing  
up to 16 cutting operations are also available.

## AIR CONVERSION RESEARCH CORPORATION

4107 North Damen Avenue Chicago 18, Illinois



### THREE GALLON TANK ASSEMBLY

# mist cooling system for cutting tools.

## HOW THE LO-JET OPERATES

Plant air is introduced into the system through the PUR-O-FIER ① which assures clean air entering the system. From the filter, the air passes through an adjustable air pressure ACRO regulator ② which determines the air pressure inside the tank ③ and also the velocity of the air at the jet. An ACRO pressure gauge ④ is included as an integral part of this regulator to indicate the air pressure in the system.

From the ACRO regulator the air goes both to the top of the tank and to the ACRO injector ⑦. The ACRO coolant flows from the tank through the coolant strainer ⑤ and sight gauge ⑥ to the ACRO injector which mixes the air and liquid to form a mist. The liquid air mixture then flows through the centrifugal equalizer distributor ⑧ when used in multiple operations, which makes sure that a number of jets are apportioned equal quantities of the atomized fluid.

The ACRO Mist is then carried from the distributor by means of flexible copper tubes ⑨ to the tool at the point of cutting. This permits the jet ⑩ to be placed in the most advantageous position for the shape of the work or the complexity of the machining operation.

There are three variables which may be adjusted to provide optimum working results for any given job: (1) the air pressure; (2) the rate of coolant introduced into the ACRO injector; and (3) the ratio of ACRO coolant to water in the original mixture.

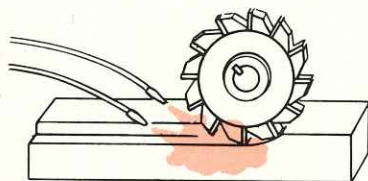
## cools the tool...not the chips

**a GRINDING** . . . The LO-JET facilitates all types of grinding operations, and is especially valuable in those jobs where high temperatures are generated and grinding wheel life is a factor. LO-JET extends the life of the wheel and protects the work from overheating during grinding. A dual nozzle setup is generally used in this work.

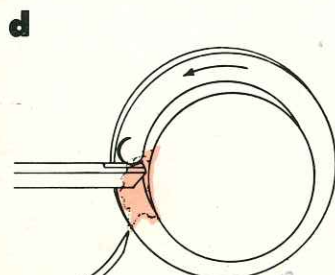
**b MILLING** . . . In the milling operation the LO-JET is set approximately 1 inch from the point where the milling cutter touches the work, and at an angle such that the jet is directed away from the operator.

**c DRILLING • TAPPING • REAMING** . . . In these operations, the high velocity and large volume of the jet is used to scour the hole and to clear the work of chips as they become freed. If the tip of the tool becomes inaccessible to the jet, a slightly larger ratio of liquid and air can be used.

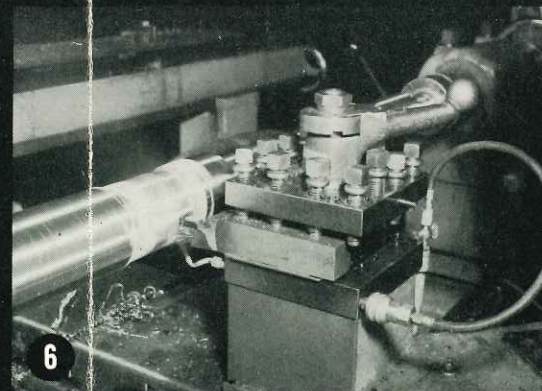
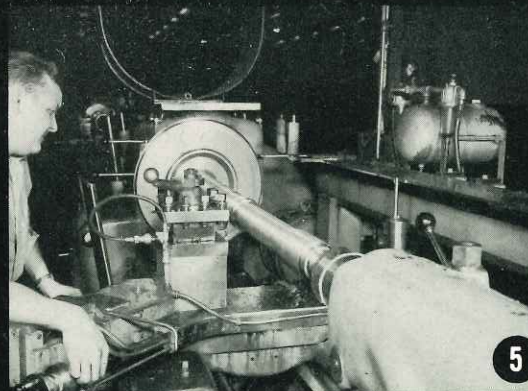
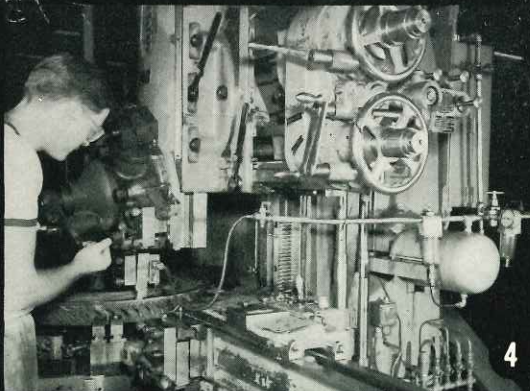
**d TURNING** . . . The LO-JET cooler is particularly adapted for lathe work. The jet nozzle should be set so that the bulk of the flow is directed against the tool. This is another illustration of how the LO-JET cools the tool and not the chip.



b



*Received  
4/30/54*



## INSTALLATION HINTS

Where a number of machines are in simultaneous operation a centrifugal equalizer distributor is available which can service up to sixteen cutting operations at once.

When the LO-JET is to be inoperative more than several days, it is recommended that it be emptied of ACRO coolant and flushed with clean water or solvent before the next operation.

For best results use freshly mixed ACRO coolant. Note: The Lo-Jet ACRO system is designed with orifices for the average operation. On unusual machining jobs, experimentation may be required to determine most suitable means of application.

lo-jet acro ...

a cool solution

to a hot problem!

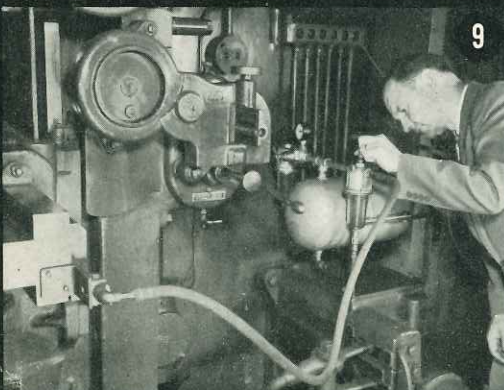
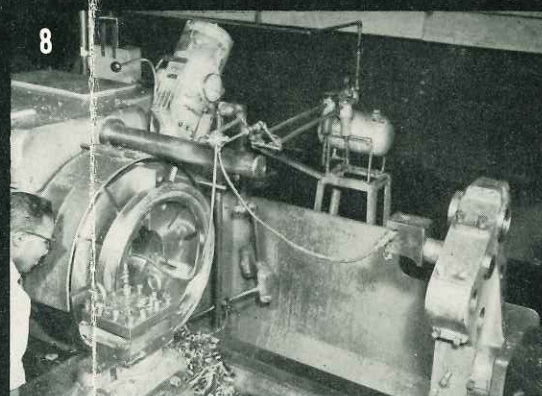
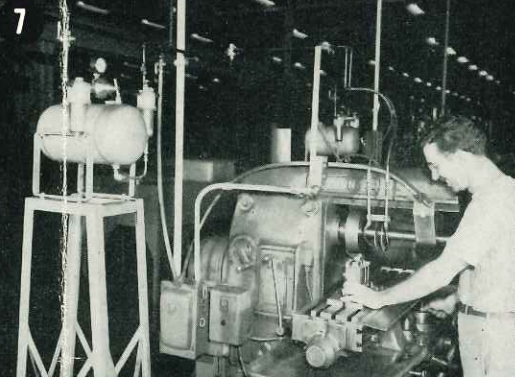
**4 FACING • TURNING • BORING WITH Lo-Jet ACRO.** These three operations are performed on a 410 stainless nozzle diaphragm for a jet engine, at 52 rpm, 0.009 ipr feed; the finish must be 40 mu. in. rms or better. Studebaker's Chicago plant does this job with 24 to 1 water solution of Acro-Coolant, with Lo-Jet injector at 75 psi.

**5 FOR JET-TURBINE SHAFTS.** Lo-Jet custom installation of spray nozzle under tool is connected through 1/4-in.-ID tubing clipped to cross slide, and 3/8-in.-ID hose. A quick acting coupling connects air stream hose line to 5/8-in. passage drilled through turret base for delivery of Acro-Coolant laden air to short nozzle tube in compression fitting under tool.

**7 Lo-Jet ACRO** assembly unit is mounted here on a stand in back of this Cincinnati 2-24 miller in this Studebaker set up for straddle milling root ends of 410 stainless jet turbine blades. Milling 2 blades per set up, cutters average 700 to 800 pieces per grind.

**8 TWO Pur-O-Lubers** are mounted on the Lo-Jet Assembly that feeds Acro-Coolant to this 5L Gisholt turret lathe so full spray volume can be fed simultaneously to a tool on carriage and one on turret while finishing timken 16-25-6 turbine wheel rings in Studebaker plant.

**9 LO-JET ACRO** is connected to Bullard turret lathe at Dodge Mfg. Corp. LO-JET ACRO has increased tool life about 35% over dry machining.



lo-jet acro

is a product of

**AIR CONVERSION RESEARCH CORPORATION**  
4107 North Damen Avenue—Chicago 18, Illinois

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